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Amendments to the claims (this listing replaces all prior listings):

- A<sub>1</sub>
1. (Currently amended) A method of transferring data between a processing agent and a memory resource comprising:  
designating the memory resource for pushing the data to the processing agent using a push bus having a plurality of sources that arbitrate use of the push bus; and,  
designating the memory resource for receiving the data from the processing agent using a pull bus having a plurality of destinations that arbitrate use of the pull bus  
identifying memory resources for pushing data to a processing agent;  
arbitrating use of a push bus by using a push bus arbiter; and  
pushing the data from the memory resources to the processing agent through the push bus, the memory resources obtaining access to the push bus based on arbitration by the push bus arbiter.
  2. (Currently amended) The method of claim 1 ~~wherein transferring comprises~~ further comprising:  
establishing a plurality of contexts on the programming agent and maintaining program counters and context relative registers.
  3. (Original) The method of claim 2 wherein the programming agent executes a context and issues a read command to a memory controller in a read phase.
  4. (Currently amended) The method of claim 3 wherein the memory controller processes the read command to be sent to one of the memory resource resources.
  5. (Original) The method of claim 4 wherein the context is swapped out if the read data is required to continue the execution of the context.

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6. (Original) The method of claim 5 wherein after the memory controller has completed the processing of the read command, the memory controller pushes the data to an input transfer register of the programming agent.

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7. (Original) The method of claim 6 wherein after the data has been pushed, the programming agent reads the data in the input transfer register and the programming agent continues the execution of the context.

8-12 (Cancelled)

13. (Currently amended) A system comprising:

~~a memory resource;~~

~~a processing agent configured to transfer data between the processing agent and the memory resource;~~

~~a push bus for pushing the data to the processing agent having a plurality of sources that arbitrate use of the push bus;~~

~~a pull bus for receiving the data from the processing agent having a plurality of destinations that arbitrate use of the pull bus; and~~

~~a plurality of microengines executing multiple contexts that seek resources of the processing agent.~~

memory resources;

a processing agent to access the memory resources;

a push bus to push data from the memory resources to the processing agent; and

a push bus arbiter to arbitrate use of the push bus by the memory resources, the memory resources obtaining access to the push bus based on arbitration by the push bus arbiter.

14. (Currently amended) The system of claim 13 ~~further comprising a read phase for the transfer of data from the memory resource to the processing agent in which the transfer is~~

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unidirectional, wherein one of the memory resources transfers data to the processing agent unidirectionally during a read phase.

15. (Cancelled).

A, 16. (Original) The system of claim 13 further comprising a plurality of program counters and a plurality of context relative registers.

17. (Original) The system of claim 16 in which the context relative registers are selected from a group comprising of general purpose registers, inter-programming agent registers, static random access memory (SRAM) input transfer registers, dynamic random access memory (DRAM) input transfer registers, SRAM output transfer registers, DRAM output transfer registers, and local memory registers.

18. (Original) The system of claim 17 in which the programming agent is ~~configured~~ to execute a context and issue a read command to a memory controller.

19. (Original) The system of claim 18 in which the memory controller is ~~configured~~ to process the read command to be sent to the memory resource.

20. (Original) The system of claim 19 in which the programming agent is ~~configured~~ to swap the context out if the read command is required to continue to execution of the context.

21. (Currently Amended) The ~~method-system~~ of claim 20 in which after the read command is processed, the memory controller is ~~configured~~ to push the data to an input transfer register of the programming agent and the programming agent is ~~configured~~ to read the data in the input transfer register and to continue the execution of the context.

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22-25 (Cancelled)

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26. (Currently amended) A machine-accessible medium, which when accessed results in a machine performing operations comprising: computer program product residing on a computer readable medium for causing a parallel processor to perform a function comprises instructions causing the processor to:

designate the memory resource for pushing the data to the processing agent using a push bus having a plurality of sources that arbitrate use of the push bus; and,

designate the memory resource for receiving the data from the processing agent using a pull bus having a plurality of destinations that arbitrate use of the pull bus

identifying memory resources for pushing data to a processing agent;

arbitrating use of a push bus by using a push bus arbiter; and

pushing the data from the memory resources to the processing agent through the push bus, the memory resources obtaining access to the push bus based on arbitration by the push bus arbiter.

27. (Currently amended) The machine-accessible medium of claim 26, which when accessed further results in the machine performing operations comprising computer program product of claim 26 further comprising instructions causing the processor to establish establishing a plurality of contexts on the programming agent and maintaining program counters and context relative registers.

28. (Original) The computer program product of claim 26 wherein the programming agent in a read phase executes a context and issues a read command to a memory controller.

29. (Original) The computer program product of claim 26 wherein the memory controller processes the read command to be sent to the memory resource and the context is swapped out if the read command is required to continue the execution of the context.

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30. (New) A method comprising:  
identifying memory resources for pulling data from a processing agent;  
arbitrating use of a pull bus by using a pull bus arbiter; and  
pulling the data from the processing agents and transfer to the memory resources through  
the pull bus, the memory resources obtaining access to the pull bus based on arbitration by the  
pull bus arbiter.

31. (New) The method of claim 30 wherein the programming agent executes a  
context and loads the data into an output transfer register of the programming agent in a write  
phase.

32. (New) The method of claim 31 wherein the programming agent issues a write  
command to a memory controller and the output transfer register is set to a read-only state.

33. (New) The method of claim 32 wherein the context is swapped out if the write  
command is required to continue the execution of the context.

34. (New) The method of claim 33 wherein the memory controller pushes the data  
from the output transfer register and the memory controller sends a signal to the programming  
agent to unlock the output transfer register.

35. (New) The method of claim 34 wherein if the context has been swapped out after  
the output transfer register has been unlocked, the context is swapped back in and the  
programming agent continues the execution of the context.

36. (New) A system comprising:  
memory resources;

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- a processing agent to access the memory resources;
- a pull bus to receive data from the processing agent and to transfer the data to the memory resources; and
- a pull bus arbiter to arbitrate use of the pull bus by the memory resources, the memory resources obtaining access to the pull bus based on arbitration by the pull bus arbiter.

37. (New) The system of claim 36 wherein the processing agent transfers data to one of the memory resources unidirectionally during a write phase.

38. (New) The system of claim 37 in which the programming agent is to execute a context and load the data into an output transfer register of the programming agent.

39. (New) The system of claim 38 in which the programming agent is to issue a write command to a memory controller and in which the output transfer register is set to a read-only state.

40. (New) The system of claim 39 in which the programming agent is to swap the context out if the write command is required to continue to execution of the context.

41. (New) The system of claim 40 in which the memory controller is to push the data from the output transfer register and to send a signal to the programming agent to unlock the output transfer register.

42. (New) A machine-accessible medium, which when accessed results in a machine performing operations comprising:

- identifying memory resources for pulling data from a processing agent;
- arbitrating use of a pull bus by using a pull bus arbiter; and

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pulling the data from the processing agents and transfer to the memory resources through the pull bus, the memory resources obtaining access to the pull bus based on arbitration by the pull bus arbiter.

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43. (New) The method of claim 1, wherein the memory resources comprise memory controller channels.

44. (New) The system of claim 13, wherein the memory resources comprise memory controller channels.

45. (New) The machine accessible medium of claim 26, wherein the memory resources comprise memory controller channels.

46. (New) The method of claim 30, wherein the memory resources comprise memory controller channels.

47. (New) The system of claim 36, wherein the memory resources comprise memory controller channels.

48. (New) The machine accessible medium of claim 42, wherein the memory resources comprise memory controller channels.